



A.D. 1863, 14th FEBRUARY. N^o 412.

S P E C I F I C A T I O N

OF

JOHN MORGAN.

EMBALMING AND CURING.

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A.D. 1863, 14th FEBRUARY. N° 412.

Embalming and Curing.

LETTERS PATENT to John Morgan, of 23, Stephen's Green North, in the City of Dublin, Esquire, F.R.C.S.I., for the Invention of "IMPROVEMENTS IN EMBALMING AND PRESERVING FROM DECAY HUMAN BODIES AND BODIES OF OTHER ANIMALS, ALSO PICKLING, CURING, AND FLAVORING ANIMAL BODIES."

Sealed the 9th June 1863, and dated the 14th February 1863.

PROVISIONAL SPECIFICATION left by the said John Morgan at the Office of the Commissioners of Patents, with his Petition, on the 14th February 1863.

I, JOHN MORGAN, of 23, Stephen's Green North, in the City of Dublin,
5 Esquire, F.R.C.S.I., do hereby declare the nature of the said Invention for "IMPROVEMENTS IN EMBALMING AND PRESERVING FROM DECAY HUMAN BODIES AND BODIES OF OTHER ANIMALS, ALSO PICKLING, CURING, AND FLAVORING ANIMAL BODIES," to be as follows:—

This Invention relates to a peculiar process of embalming and preserving
10 from decay human bodies and bodies of other animals, applicable also to the pickling, curing, and flavouring of animal bodies generally.

In carrying out this Invention it is proposed to employ any suitable preservative fluid; but it is preferred to use a saline solution consisting of chloride

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of sodium and nitre, or solutions of an analogous nature, perfumed with spices, and flavoured or not, as required. This or any other suitable preservative solution is to be injected into and through the circulatory organs of the body to be preserved, or flavoured by any suitable or well-known contrivance, which will cause the preservative or flavouring fluid to pass through the arteries and 5 veins, and finally to be retained therein and so percolate throughout the entire mass of the body.

SPECIFICATION in pursuance of the conditions of the Letters Patent, filed by the said John Morgan, in the Great Seal Patent Office on the 14th August 1863.

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TO ALL TO WHOM THESE PRESENTS SHALL COME, I, JOHN MORGAN, of 23, Stephen's Green North, in the City of Dublin, Esquire, F.R.C.S.I., send greeting.

WHEREAS Her most Excellent Majesty Queen Victoria, by Her Letters Patent, bearing date the Fourteenth day of February, in the year of our Lord 15 One thousand eight hundred and sixty-three, in the twenty-sixth year of Her reign, did, for Herself, Her heirs and successors, give and grant unto me, the said John Morgan, Her special license that I, the said John Morgan, my executors, administrators, and assigns, or such others as I, the said John Morgan, my executors, administrators, or assigns, should at any time agree 20 with, and no others, from time to time and at all times thereafter during the term therein expressed, should and lawfully might make, use, exercise, and vend, within the United Kingdom of Great Britain and Ireland, the Channel Islands, and Isle of Man, an Invention for "IMPROVEMENTS IN EMBALMING AND PRESERVING FROM DECAY HUMAN BODIES AND BODIES OF OTHER ANIMALS, ALSO 25 PICKLING, CURING, AND FLAVORING ANIMAL BODIES," upon the condition (amongst others) that I, the said John Morgan, my executors or administrators, by an instrument in writing under my hand and seal, or under the hand and seal of one of them, should particularly describe and ascertain the nature of the said Invention, and in what manner the same was to be performed, 30 and cause the same to be filed in the Great Seal Patent Office within six calendar months next and immediately after the date of the said Letters Patent.

NOW KNOW YE, that I, the said John Morgan, do hereby declare

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the nature of my said Invention, and in what manner the same is to be performed, to be particularly described and ascertained in and by the following statement, that is to say:—

My said Invention consists in introducing into animal bodies preservative
5 fluids by means of the natural channels of the circulation, whereby structures are permeated by the fluids, whether for preservation for the purpose merely of embalmment, as in the case of human bodies, where poisonous solutions may be used for the purpose of the dissecting room, or preservation in sealed cases of glass or other material in place of coffins to be kept in mausoleums,
10 vaults, or otherwise. It further consists in preserving, curing, or preparing animal bodies intended to be used for food, such as beef, swine, and all the mammalia and birds (as well as the lower animals in some instances), by impregnating their bodies with salt, salt and saltpetre, salt and muriate of ammonia, or other salts, sugar, treacle, or materials for preservative, flavoring,
15 coloring, medicating, and other purposes. I propose by this process to cure and preserve not only the bodies but the hides of animals where it is desired.

For Embalment of Human Bodies.—For Adults.—In embalming human bodies the breast bone or sternum is to be first cut down the centre, or the
20 cartilages of the ribs where they join the sternum is to be divided, and the sternum or breast bone raised up. The pericardium or bag containing the heart will be thereby exposed; open this longitudinally and transversely, so that the surface of the heart will be exposed; an incision is then made in the left ventricle, that is, on the left-hand side of the mark or furrow that is on
25 the front of the heart, or an incision may be made in the aorta or great vessel near the base of the heart, and a pipe or tube of about eight inches in length introduced into this vessel; a stout twine doubled is then to be passed underneath this vessel, near the base of the heart, the finger and thumb grasping the vessel, or a large aneurism needle or curved wire may be used if more
30 convenient; it will now be found that the finger and thumb or cord, if tied, will enclose two vessels, into one of which the pipe is introduced; the other, which is softer and not so large (in front of aorta), leads to the lungs; tie the cord, having made two of it, round these two vessels, the pipe being in the hinder one, and fasten the cords; when securely tied to the pipe near its outer
35 end (which must be provided with a stop-cock), hitching the cord over the stop-cock so that the pipe cannot slip out of the vessel. To the outer end also is a coupling, such as gasfitters use, which can be coupled with another stop-cock having a pipe about two inches long at each side; one end is to fit

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the coupling, and the other end to fit into a piece of india-rubber tubing well tied on, which at a few inches off may have a piece of glass tubing inserted for convenience, so that the course of the fluid may be observed. I recommend the tubing to be half-inch in diameter, and from twelve to fifteen feet long; any tubing that bears heat will do, but this is more convenient. The tubing must 5 be connected at the further end with a vessel capable of containing fluid either hot or cold, which vessel should be raised from about twelve to fifteen feet above the subject to be operated on. In place of this simple arrangement for obtaining head pressure, any ordinary pumping machine, hydropult, or hydraulic forcing apparatus may be used for injecting the fluid or a greater 10 height. That part of the heart known as the right auricular appendix must now be found; it is an offset from the cavity into which all the venous or returning blood of the body goes, and in the subject some time dead will be found to contain coagulated blood; the tip is to be cut off or an incision made in it; the coupling between the two stop-cocks, that is, the one between pipe 15 in aorta and the stop-cock attached to india-rubber tube before mentioned, is now to be connected, taking care that both cocks are turned off or shut. Half a gallon of saturated solution of common salt, containing also four ounces of nitre dissolved in it, the whole well strained through flannel or muslin, in winter, and for a subject recently dead, heated up to eighty or ninety degrees, 20 in summer or hot weather cold, and, if necessary, cooled artificially, should be introduced into the raised vessel before referred to. The stop-cock next the india-rubber tube is now opened, and the air contained between the two stop-cocks allowed to escape up the tube; then allow the half a gallon of the above solution to run in; it will be found to rush through the circulatory 25 organs, and out at the incision in the right auricular appendix. In animals some time dead it should be let in slowly, so that the coagulated blood may be dissolved; and when the fluid has ceased running from the incision put on a clamp, or with a broad forceps with sliding catch embrace the right auricular appendix, including the incision, or ligature the right auricular appendix in 30 any way, so as to seal or close it. Introduce into the raised vessel the following solution:—Saturated solution of common salt, one gallon; nitre, one pound; alum, one pound; from two drachms to one ounce of arseniate of potash; and for dissecting room purposes, oil of thyme, one and a half ounce; oil of winter green, half a drachm. 35

This mixture to be kept in agitation and previously well strained while turned on, and running from the vessel into the subject, which should take but a few minutes, when it will be found that the fluid not being able to

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escape from the incision in the auricular appendix, will filtrate through the capillanus and small vessels in every tissue of the body. This will suffice to keep bodies for a considerable length of time. For dissecting or such purposes as just now mentioned, the alum and poisonous solution may be omitted, 5 and one and a half ounce of oil of thyme, &c. added to the solution, but in hot weather the poisonous solution should be added. During the operation the subject should have the legs a little lower than the rest of the body, and all resting pretty flat. If it be desirable still further to preserve the body, the following solution (No. 2) will be found both cheap and efficacious:—Three 10 quarts methylated spirit, three ounces of tannin, one and a half ounce oil of thyme, three ounces oil of rosemary, three drachms oil of cloves, thirty drops of oil of winter green, to be introduced in the same way in from six to twelve hours after the first operation. The pulmonary artery should also be opened, and one quart and one half of preserving fluid No. 1 introduced, suffi- 15 cient to make it run from the mouth, and one quart of No. 2 fluid in an hour after. The above quantities must be increased in hot weather, and proportioned necessarily to the size of the subject; other scents and solutions may be used, these are mentioned being more efficacious and inexpensive. All mammalia and birds being constructed on the same plan, the same principle 20 will apply, modified as to size and amount of material and composition of material used as fluid for preserving. The subjects should after the operation be left lying in a cool dry place and in a current of air. In twenty-four hours the eyelids should be neatly stitched or glued down, also the mouth closed, a little wool or cotton impregnated with No. 2 solution being first intro- 25 duced therein. The pipe or clamp should not be removed for six or eight hours, when the incision in the chest should be treated in the same way, and stitched; should it be desired to preserve permanently the subject they should be further dried for some days by exposure in a current of air, and turned on sides and front and back every six hours, and when tolerably dried placed in 30 a moulded glass coffin with moveable glass lid, which can be sealed down with a heated solution of two parts of gutta percha, one part of pitch, and one quarter part of marine glue.

In Curing Swine, Beef, &c.—First kill the animal by knocking on the head with a heavy blunt maul, or by blowing air into the jugular or other vein, or 35 by making openings into the chest and forcing in air or water into the cavity of the chest so as to collapse the lungs. I recommend the blow in the head when properly done as most efficacious of all. So soon as the animal struggles are over lay it on a table on its back, and open the breast bone, sawing it

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right down the centre, passing in the fingers at the incision and clearing away the fat and the two manuary veins which run pretty close on each side; open the bag containing the heart, when the right auricular appendage will be seen full of dark colored blood; make an incision into the nearest part, its tip if possible, a snip with a pair of scissors being the best, when the blood 5 will rush out, also directly plunge the scissors into the left ventricle and make an opening, when blood will rush out. Then lay the animal on its belly for a few minutes or so, and afterwards or hang it up by a chain attached to the hind legs for a few minutes, when the blood will be run off. The animal should then be scalded or singed, as may be required; if singed, a wet cloth should be 10 introduced into the opening made in the flesh; enlarge, if necessary, the incision in the left ventricle, that is, at the animal's left side of the furrow on the front of the heart, and pass a pipe twelve inches or so in length into the aorta or great vessel which leads from this cavity; pass a stout double twine under this vessel close to the heart where the finger and thumb can meet, and 15 tie it securely (it will be found that the twine includes the aorta or large vessel with the pipe in it, and another vessel in front of the aorta leading to the lungs); the end of the pipe should not be inserted more than an inch or so into the vessel, and this pipe is to be furnished within two inches of the outer end with a stop-cock, over which the ends of the twine are to be hitched in 20 order to prevent the pipe from slipping out of its place. The outer end must have a coupling to fit another stop-cock, having a pipe two inches in length or more at either side, one end for coupling and the other to fit into an india-rubber tubing of from half an inch to one inch in diameter, and to be well tied on; the india-rubber tubing to be six or eight feet long, and sufficient lead 25 pipe provided to connect it with a vessel situate twelve to eighteen feet above the level of the table on which the animal is placed; introduce into this vessel half a gallon of a saturated solution of common salt and two ounces of nitre dissolved in it, and the whole well strained (in very cold weather, or where the animal is some time dead, heated to ninety or eighty degrees), but 30 in ordinary temperature cold, if temperature above sixty degrees this pickle should be artificially cooled below freezing; connect the coupling and open the stop-cock to the india-rubber tube, in order to permit the air contained between it and the second stop-cock, which is turned off, to escape; the air can be seen escaping upwards in the form of a bubble if a piece of glass tube be 35 inserted in this india-rubber tubing; both stop-cocks may now be opened by degrees, when the fluid will be seen rushing out at the incision in the ear or auricular appendix or cavity where the first cut was made; when run through,

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a clamp or very broad forceps with a sliding catch should be applied to this appendix so as to include the cut. The appendix is mentioned as being the most convenient. Any part of the right side of the heart would answer or the two large veins that leads to the heart, and the pickle as before again turned
5 on, but with the addition of half pound of saltpetre to each ordinary pig; and if a brighter color be desired, two hundred grains or more of sal ammoniac or a little cochineal or other harmless coloring may be added. One gallon and half in winter, from that to two gallons and half in hot weather of fluid I find quite sufficient, but any quantity that the particular market
10 or public requirements demand can be used. The animal may now lie on the back for half hour to one hour, then be disembowelled, split if necessary, hung up four to six hours if possible by the hind and fore legs alternately, and placed the next day in a drying loft; or the middles may be put from twenty-four hours to three days or more in salt, and hams from three to six days or
15 more, according to taste, requirements, and time of year; where pickle cooled to freezing point or lower is used, the animal may be put in salt in two or three hours. The animal after being knocked down may be singed without the incision being made if it be opened and operated upon directly after singing; or an animal dying choked or smothered can be so treated by letting
20 the first part of the process of washing out be done slowly, some saltpetre being put in the pickle. Sugar used by dissolving two pounds or more of sugar or molasses, one in the gallon of pickle, I have found most efficacious, and produce a nicer and better flavored article, less pickle being required in this case. Spices in decoction or other condiments can be thus introduced with the
25 greatest ease, a very small quantity, according to taste, sufficing.

In Preparing Navy and Cask Provisions.—The above process is to be used with beasts and pork, adding molasses and spices according to taste, and, as required by the authorities, lime juice or antiscorbutic salts may also be introduced when desired. The proportion for beasts is about six pounds of salt
30 and half pound of saltpetre to the hundredweight, this to be packed in casks in the ordinary way, the spaces filled up with pickle, two pounds of salt to the hundredweight of meat being added, the whole to be barrelled tightly. Meat prepared in the manner above described is not liable to become hard, is more nutritious, and can be made of a much less scorbutic nature and more
35 agreeable to the palate than by ordinary processes of curing.

For the Purposes of Medication.—Iron, iodine, and other remedies can by this process be diffused through the animal with flavorings of any kind. In all cases the proportions of the ingredients of the injecting fluids will be varied

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according to circumstances, and the fluids may be used either separately or as auxiliary to other processes now in use.

Having now described and particularly ascertained the nature of my Invention, and the manner in which the same is used or carried into effect, I would observe in conclusion that what I consider to be novel and original, and therefore claim as the Invention secured to me by the herein-before in part recited Letters Patent is, the embalming or preserving of human bodies, and the preserving, pickling, curing, medicating, and flavoring of animal bodies generally by forcing or injecting preservative or antiseptic fluids through the natural channels of the circulation of the blood, as herein-before described. 10

In witness whereof, I, the said John Morgan, have hereunto set my hand and seal, this Eleventh day of August, One thousand eight hundred and sixty-three.

JOHN MORGAN. (L.S.)

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